

**REMARKS**

This response is filed in response to the Office Action mailed February 1, 2006 and the Advisory Action mailed April 13, 2006.

The Examiner withdraws the rejection of Claims 55, 88 and 89 due to Applicants' prior amendment of the claims.

The Examiner continues to reject Claims 55, 57-59, 88 and 89 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over newly cited art, *Kain, Jr. et al.* (6,180,206). Applicants amend Claims 55, 88 and 89 to further clarify in the claims Applicants stiffness-treated prepeg ply. Support for Applicants' amendment to these claims appears at 6:25-7:2; and 20: 13-29.

Applicants respectfully urge that *Kain, Jr.* does not anticipate or make Applicants' claimed invention obvious and request withdrawal of the Examiner's rejection placing the application in order for allowance.

**Rejection Under 35 U.S.C. § 102(e) and 103(a)**

The Examiner rejects Claims 55, 57-59, 88 and 89 under 35 U.S.C. § 102(e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Kain, Jr. et al.* (6,180,206).

First, the Examiner asserts that Applicants do not exclude the type of honeycomb structure described in *Kain, Jr.* such that *Kain, Jr.* The Examiner asserts that *Kain, Jr.* merely describes a more specific version of Applicants' invention. However, Applicants' invention is a modification of the fiber tow, which results in increased friction between the prepeg plies in order to reduce core crush. *Kain, Jr.* readily admits all he does is to "rearrange the order of the plies." Abstract. Applicants claim a stiffness-treated fabric prepeg useful for honeycomb core structures whereas *Kain, Jr.* describes a complete honeycomb sandwich panel.

The Examiner argues that slippage between plies may also be reduced by the *Kain, Jr.* invention and therefore, Applicants' method of increasing friction between plies is obvious. This argument is inconsistent in that frictional increase is a material characteristic and the fact that the *Kain, Jr.* core no longer slips against the face ply does not support the position that the frictional resistance to slippage between the

plies is increased as Applicants claim. Even assuming *arguendo* slippage between plies is prevented by *Kain, Jr.*, preventing slippage between prepreg plies is not taught by *Kain, Jr.* to prevent core crush, and therefore, Applicants' method of preventing slippage between plies is nonobvious.

As such, Applicants respectfully request the Examiner withdraw the rejection and allow the application.

Second, the Examiner asserts that "the two layers taught by *Kain, Jr.*, i.e., the prepreg ply adjacent the adhesive layer, correspond to the applicant's stiffness-treated prepreg ply, as defined in the claims, which comprise a stiffness treated fabric and a resin system." It appears that the Examiner is asserting that the *Kain, Jr.* standard prepreg ply and adhesive layer correspond to Applicants' stiffness-treated prepreg ply. It is unclear how the Examiner interprets these entirely separate layers as being even remotely equivalent.

Applicants claim a "stiffness-treated fabric including a plurality of fibers and a polymerized precursor of a polymeric material" where the stiffness value increases over untreated fabric. Claim 55. Applicants clearly define the treatment process, for example Page 33, Lines 1-9. Applicants claim an increase in stiffness value of fabrics and not stiffness value of prepgs as the Examiner appears to assert. Moreover, Applicants' stiffness-treated fabric prepreg is claimed to increase the frictional resistance between the stiffness-treated fabric and untreated prepgs.

Furthermore, it is unclear how the Examiner is involving the adhesive layer of *Kain, Jr.* or how the Examiner believes the *Kain, Jr.* adhesive layer modifies the standard prepreg into Applicants' stiffness-treated prepreg. The adhesive layers described in *Kain, Jr.* are not in contact with the face sheets as the Examiner asserts. The adhesive layers are only to bind tie down plies together and are outside of the part configuration. Figure 4 and col. 6, Ins. 63-66. It appears that the only explanation is the Examiner's unacceptable use of hindsight in an attempt to identify features of *Kain, Jr.* and attempt to correlate those features with Applicants' invention in order to awkwardly assert an obviousness rejection. Accordingly, the Examiner's rejection must be withdrawn.

It is further unclear how the Examiner finds in *Kain, Jr.* that "outer skin layers are made from prepreg plies comprising a fibrous fabric layer and a polymeric coating which inherently stiffens the fabric material." The untreated fabric material

described in *Kain, Jr.* is not taught or disclosed to be stiffened in *Kain, Jr.*, but maybe the Examiner is asserting that the resin coated fabric prepreg of *Kain, Jr.* would be stiffer than just the fabric. This is not an accurate comparison with Applicants' stiffness-treated fabric. Applicants' define stiffness treated fabric to be "fibers and a polymerized precursor of a polymeric material disposed on at least some of the fibers, where the stiffness-treated fabric exhibits an ASTM stiffness value not less than 7% greater than the ASTM stiffness value of an untreated fabric." Applicants' treatment is clearly defined in the patent to not be a mere prepreg with resin. Applicants' fabric is stiffer. Not the resin coated fabric prepreg. For instance, Example 2 identifies that the "stiffness enhancing precursor concentration levels [were] (0.13%-0.15%, as indicated in parentheses) of the particular finish." Applicants' page 50, lines 25-27. These small amounts of stiffness precursor are nowhere on the order of a resin for a prepreg to which the Examiner is attempting to compare. Clearly, one skilled in the art appreciates the difference between a resin impregnated prepreg and a fiber surface treatment.

If *Kain, Jr.* teaches "plies ... which inherently stiffens the fabric material" then stiffness values for Applicants' treated material and an untreated material would be the same. However, Applicants' Example 1, Table 2 disposes of this issue by clearly comparing untreated fibers with only sizing and stiffen-treated fibers as claimed by Applicants. The results are that stiffness values are increased with treated fiber materials.

Third, the Examiner asserts that the frictional resistance between the prepreg plies in *Kain, Jr.* is inherently the same as Applicants by stating that *Kain, Jr.* "discloses the same structural features recited in the claim" and that these "same structural features" have inherently the same properties and the burden is on Applicants to supply evidence to the contrary.

Applicants' evidence is within the patent application. *Kain, Jr.* identifies its plies as all being the same and all being standard prepreg plies, including the "facing ply." "I use only the structural plies required for the performance of the panel with a new arrangement of those plies while preventing core crush." *Kain, Jr.* Col. 8, lines 51-54. As such, all *Kain, Jr.* plies are of the same structural features. In contrast, Applicants' inventive plies have different structural features, treated versus standard untreated plies.

Applicants Example 5 compares the frictional resistance between two plies of untreated standard prepreg and two plies of treated as claimed by Applicants. Through this comparison, it is appreciated that frictional resistance is increased through Applicants' invention and is not inherent to standard plies. Example 5 and Table 3 and Figures 10-12 therein provide data demonstrating the increased frictional resistance of the claimed treated plies.

As such, the *Kain, Jr.* laminate layer and facing ply do not possess any increased frictional resistance as claimed by Applicants. Applicants claim that the frictional resistance between the stiffness-treated fiber prepreg and untreated fiber prepreg is greater than the frictional resistance between two untreated fiber preps. Applicants' Claim 1. Accordingly, *Kain, Jr.* neither teaches nor discloses Applicants' claimed invention.

Therefore, not only is the Examiner's assertion that the "prior art has the same structural features as the claimed invention" inaccurate, but the frictional resistance of Applicants' treated fibers is greater than untreated fibers.

Accordingly, the Examiner's rejection should be withdrawn.

It is respectfully submitted that the prepreg of a honeycomb sandwich structure precursor of the present invention as claimed by Applicants is patentable and not anticipated by the prior art including *Kain, Jr.* It is submitted that Claims 55, 57-59, 88 and 89 define a patentable invention and prompt allowance is sought. Please direct any questions to the undersigned attorney at (714) 666-4396.

The Commissioner is hereby authorized to charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to Deposit Account No. 03-4083.

Respectfully submitted,



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